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09/634,823	08/08/2000	Patrick Joseph Curran	200-0067	4286

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EXAMINER

KING, BRADLEY T

ART UNIT

PAPER NUMBER

3683

DATE MAILED: 03/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/634,823

Applicant(s)
Perach et al

Examiner
Bradley King

Art Unit
3613



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 3, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

Art Unit: 3613

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the top margins are too small. See 37 CFR 1.52a (1i). Text at the top of the pages have been obscured by hole punches.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the step of “selectively disabling said regenerative braking system if said antiskid braking event is only occurring at either of said first pair of wheels.” The meaning of these limitation is unclear as the specification seems to indicate that the regenerative braking is disabled whenever the driven wheels are in antiskid (not when only the driven wheels are in antilock).

Art Unit: 3613

Claim 16 recites “reducing the amount of said regenerative braking force relative to said total braking force.” There is insufficient antecedent basis for “the amount” and it is unclear what the ratio is reduced from. From the specification, it appears that the ratio does not actively change, but is reduced from that of prior art systems.

Claim 18 recites limitations regarding the auxiliary bus which are recited in parent claim 14 and therefore redundant.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-78839 in view of WO 9836956.

JP 11-78839 discloses a braking system with a first portion (28, 40, 42, 46) which selectively provides a regenerative braking function at a first pair of wheels (10, 12), a second portion (46, 58) which is communicatively connected to the first portion and which selectively provides an antiskid braking function at the first and second pair of wheels, the second portion being effective to detect antiskid braking events at each of said wheels, and which communicates

Art Unit: 3613

a signal to the first portion, effective to selectively disable the regenerative braking function only if an antiskid braking event is detected at either of the first pair of wheels (see column 3, lines 45-50 of US equivalent US 6231134). JP 11-78839 fails to disclose an auxiliary bus for connecting the portions. WO 9836956 (US Eq 613567) teach a communication system for a brake system which includes an auxiliary bus 12 and a twin wire bus (CAN) for communication between modules to provide a redundant control system. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the communication system of WO 9836956 in the brake system of JP 11-78839 to increase the safety of the system.

Regarding claims 7 and 8, WO 9836956 discloses using a PWM signal in the auxiliary bus.

6. Claims 3-4, 12-13, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-78839 and WO 9836956 as applied to claims 1, 8 and 14 above, in further view of Kade et al.

JP 11-78839 and WO 9836956 as applied to claims 1, 8 and 14 above discloses all the limitations of the instant claims with exception to the explicit disclosure of precluding regenerative braking when the battery is full. JP 11-78839 does recognize the need to limit the regenerative braking based on parameters of the electric storage device (see column 18, lines 8-11 of the US equivalent US 6231134), but fails to provide greater detail. Kade et al disclose the determination of regenerative braking based on the charge state of the battery. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to

Art Unit: 3613

preclude regenerative braking when the battery is at full charge in the system of JP 11-78839 as taught by Kade et al to prevent damage to the battery.

Regarding claim 16, JP 11-78839 lacks the reduction of the ratio of regenerative braking force. Kade et al teach the reduction of regenerative braking force to improve the transition from blended braking to hydraulic braking. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to reduce the regenerative braking ratio as taught by Kade et al to provide a smooth transition when the regenerative braking is zeroed.

Regarding claim 17, JP 11-78839 lacks the ratio of 20% between the regenerative and total braking force. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the optimum ratio which provides both adequate braking and a smooth transition through routine experimentation.

7. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kade et al in view of WO 9836956.

Kade et al disclose a braking system with a first portion (38, 63, 65) which selectively provides a regenerative braking function at a first pair of wheels (14, 16), a second portion (38, 62) which is communicatively connected to the first portion and which selectively provides an antiskid braking function at the first and second pair of wheels, the second portion being effective to detect antiskid braking events at each of said wheels, and which communicates a signal to the first portion, effective to selectively disable the regenerative braking function only if

Art Unit: 3613

an antiskid braking event (rear wheel in a release mode) is detected at either of the first pair of wheels (see steps 162 and 164 in figure 2b). Kade et al lack an auxiliary bus for connecting the portions. WO 9836956 (US Eq 613567) teach a communication system for a brake system which includes an auxiliary bus 12 and a twin wire bus (CAN) for communication between modules to provide a redundant control system. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the communication system of WO 9836956 in the brake system of Kade et al to increase the safety of the system.

Regarding claims 3, 12, and 15, see step 138. The regenerative braking available depends on the state of charge of the battery. When the battery voltage reaches the upper limit, no regenerative braking is available.

Regarding claim 16, Kade et al disclose the reduction of regenerative braking to ensure a smooth transition of the regenerative braking command to zero. See column 4, lines 32-34.

Regarding claim 17, Kade et al lacks the specific ratio of 20%. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the optimum ratio which provides both adequate braking and a smooth transition through routine experimentation.

Response to Arguments

8. Applicant's arguments with respect to Kade et al and JP 11-78839 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 3613

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley King whose telephone number is (703)308-8346.



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BTK

March 24, 2002